

What is claimed:

1. A treated particulate inorganic solid composition comprising:

(a) a particulate inorganic solid; and

(b) an organophosphinic compound having the formula:



wherein R_1 is a organic group having from 2 to 22 carbon atoms, and
 R_2 is hydrogen, or an organic group having from 2 to 22 carbon atoms, and
 M is hydrogen, ammonium, organoammonium or a metal ion.

2. The treated particulate inorganic solid composition of claim 1, wherein the particulate inorganic solid is selected from the group consisting of kaolin, talc, calcium carbonate, zinc oxide and mica.

3. The treated particulate inorganic solid composition of claim 1, wherein the particulate inorganic solid is titanium dioxide.

4. The treated particulate inorganic solid composition of claim 1, wherein the particulate inorganic solid is treated with a compound selected from the group consisting of polyalcohols, alkanolamines, inorganic phosphates and mixtures thereof.

5. The treated particulate inorganic solid composition of claim 1, wherein said composition further comprises an inorganic oxide.

6. The treated particulate inorganic solid composition of claim 5, wherein said inorganic oxide is selected from the group consisting of silicon dioxide, zirconium oxide and aluminum oxide.
- 5 7. The treated particulate inorganic solid composition of claim 1, wherein R₁ is hexyl-, octyl-, isooctyl- or 2-ethylhexyl-.
8. The treated particulate inorganic solid composition of claim 1, wherein the organophosphinic compound is present in the amount from about 0.1 percent
10 to about 5 percent by weight of the particulate inorganic solid, based on the weight of the particulate inorganic solid prior to treating the particulate inorganic solid with the organophosphinic compound.
9. The treated particulate inorganic solid composition of claim 1, wherein the
15 organophosphinic compound is present in the amount from about 5 percent to about 30 percent by weight of the particulate inorganic solid, based on the weight of the particulate inorganic solid prior to treating the particulate inorganic solid with the organophosphinic compound.
- 20 10. A polymer matrix comprised of a polymer and the treated particulate inorganic solid composition of claim 1.
11. The polymer matrix of claim 10, wherein the polymer is polyethylene.
- 25 12. The polymer matrix of claim 11, wherein the amount of the treated particulate inorganic solid composition is from about 50 percent to about 85 percent by weight of the polymer matrix, based on the weight of the polymer matrix.
13. The polymer matrix of claim 12, wherein the particulate inorganic solid is
30 titanium dioxide.

14. A method for preparing a treated particulate inorganic solid composition,
wherein said method comprises the steps of: (i) filtering a slurry, said slurry
comprising a particulate inorganic solid; and (ii) combining said particulate
inorganic solid after said filtering with an organophosphinic compound,
wherein said organophosphinic compound has a formula of:



wherein R_1 is an organic group having from 2 to
22 carbon atoms, and
 R_2 is hydrogen, or an organic group
having from 2 to 22 carbon
atoms, and
 M is hydrogen, ammonium,
organoammonium or a metal ion.

15. The method according to claim 14, wherein the particulate inorganic solid has
been treated with the organophosphinic compound prior to a drying stage.
16. The method according to claim 14, wherein the particulate inorganic solid has
been treated with the organophosphinic compound during a milling stage.
17. The method according to claim 14, wherein the particulate inorganic solid has
been treated with the organophosphinic compound when the particulate
inorganic solid is in the form of a filter cake.

18. A method for preparing a treated particulate inorganic solid, comprising combining a dry particulate inorganic solid and an organophosphinic compound, wherein said organophosphinic compound has a formula of:



wherein R_1 is an organic group having from 2 to 22 carbon atoms, and
 R_2 is hydrogen, or an organic group having from 2 to 22 carbon atoms, and
 M is hydrogen, ammonium, organoammonium or a metal ion.

19. The method according to claim 18, wherein the particulate inorganic solid has been treated with the organophosphinic compound during a micronization stage.

20. The method according to claim 19, wherein the particulate inorganic solid is titanium dioxide.

21. The method according to claim 19, wherein the particulate inorganic solid is titanium dioxide, and R_1 is hexyl-, octyl-, isooctyl- or 2-ethylhexyl-.